

A MULTIPLE ENDPOINT STUDY OF INDIVIDUALS INVOLVED IN THE CHERNOBYL POWER PLANT ACCIDENT.

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The field of analytical cytology has played a key role in the development of techniques for assessing genetic damage in humans exposed to genotoxic agents. Clear biodosimeter responses have been observed for groups with high-dose exposures. The large population of individuals involved in cleaning up after the Chernobyl accident provide an opportunity to assess the utility of biodosimetric assays for characterizing low-dose exposures to ionizing radiation. The three assays being used in this study are 1) stable chromosome aberrations in lymphocytes detected by FISH; 2) glycophorin A mutations in erythrocytes detected by flow cytometry; and 3) HPRT mutations in lymphocytes detected by a cloning assay. While some exposure effects are being detected by each assay, issues such as target cell biology, confounding factors, and correlations among endpoints will be important for understanding radiobiological effects on humans. [Work performed under the auspices of the U.S. Department of Energy by LLNL under contract W-7405-ENG-48 with support by NIH grant P01-CA59431 (RHJ)]